NIH Adherence Network

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- Or email them to
- nilsenwj@od.nih.gov

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Using EHR Data and Clinical Decision Support Tools to Enhance Provider 'Adherence' to Guideline-based Prescribing in Safety Net Clinics

April 18, 2013 – NIH Adherence Network Webinar

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- OCHIN:
  - Jen DeVoe, Jon Puro, Christine Nelson, Stuart Cowburn and others

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Background

- Integrated care organizations (e.g., Kaiser Permanente) effectively use EHR-based tools to enhance provider 'adherence' to guideline-based diabetes care.
- Using several such tools, KP's 'ALL Initiative' intervention improved *guideline-based cardioprotective prescribing* for patients with diabetes.
- We are studying how to apply these tools and related strategies in safety net CHCs, which differ greatly from KP.

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Study questions

- What EHR-based clinical decision support tools effectively improve CHC providers' adherence to guideline-based care?
  - In this case, medication prescribing in patients with diabetes
- Can such tools be 'translated' from other settings to CHCs?
- What aspects of tools developed in non-CHC settings work best in CHCs (e.g., what tool content, format, type)?
- What are barriers and facilitators to tool use / uptake?

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To answer those questions ...

- We 'translated' EHR-based decision support approaches used by KP's 'ALL Initiative' into 11 CHCs in Portland
- We partnered with the OCHIN practice-based research network (aka Safety Net West) to adapt KP's strategies / tools to meet the CHCs' needs
- *... 1st RCT on translating this (or other?) interventions from private care settings to CHCs*

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The 'ALL Initiative' intervention: Overview

- Evidence: Many DM patients can significantly reduce risk of CVD events by taking statins / ACE-inhibitors.
- A.L.L. = Aspirin*, Lisinopril (ACE-I), Lovastatin (statin).
- Goal: Increase % of DM patients with *active prescriptions* for these medications, if indicated for the meds per national guidelines.
  - KP also sought to increase *patient* adherence to taking prescribed medications
- 3 years post-implementation at KP, an estimated 60% reduction in CVD events.

Dudl et al. *Am J Manag Care.* 2009;15:e88-e94. / Wong et al. *Permanente Journal.* 2011;15:36-41. / Yeh et al. *NEJM.* 2010;362:2155-2165.

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The ALL Initiative at KP (all regions)

Strategies for enhancing provider adherence / uptake: Simplify ...

1) *Identifying* patients missing guideline-indicated med(s)
2) *Prescribing* the med(s)

Other elements promoting adherence:

- Provider incentives tied to monthly feedback
- Identification of / leadership by clinician ALL 'champions'
- 'Top-down' practice change directives

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The ALL Initiative at KP Northwest

EHR-based decision support tools:

- Automated point-of-care alerts
- Panel management tools supporting:
  - Daily inreach ‘scrub’
  - Targeted outreach

Other EHR-based tools:

- Order sets (one click fixed-dose medication ‘bundle’)
- After-visit summary text / other patient education materials

Other elements:

- Provider incentives and feedback; Staff training aids

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Study design: Overview

- *Staggered implementation*: 11 Portland-area CHCs randomized to implement 'early' versus 'late'
  - OCHIN members: Share one EHR managed centrally at OCHIN
  - Patient populations are diverse, low-income, underinsured
- Year 1: Adapt KPNW's ALL Initiative tools, strategies; begin collecting mixed-methods data
- Year 2: Intervention in 6 'early' clinics
- Year 3: Intervention in 5 'late' clinics ← *ends 6/1*
- Years 4-5: Mixed-methods evaluation
  - Intervention associated with change in % clinic patients with appropriate rxs, by month?
  - What worked, what didn't, why?

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Adapting ALL for CHCs

Year 1: Research team + OCHIN staff + CHC staff:

- Reviewed ALL intervention components used at KP
- Iteratively discussed:
  - Which elements fit study clinics' workflows, culture?
  - What else is wanted … and feasible?
- Built a 'menu' of tools
  - Some minimally revised; others recreated in adapted form

Gold et al, JHCPU. 2012 Aug;23(3 Suppl):236-46.

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The adapted intervention's menu of tools the CHCs could choose to use …

1. BPA (alert) at point of care: *supports PCP adherence through reminders*

2. Order sets with common ACE/ARB and statin orders: *makes prescribing easy*

3. Patient data summary / panel management rosters for:
   - Inreach / scrubbing: *another reminder mechanism*
   - Outreach: *facilitates identifying patients needing meds*
   - Follow-up: *facilitates follow-up to improve patient adherence*

4. Other tools (generally target *patient* adherence)
   - Exam room posters, patient education handouts (English, Spanish, Russian), dotphrases with After Visit Summary text

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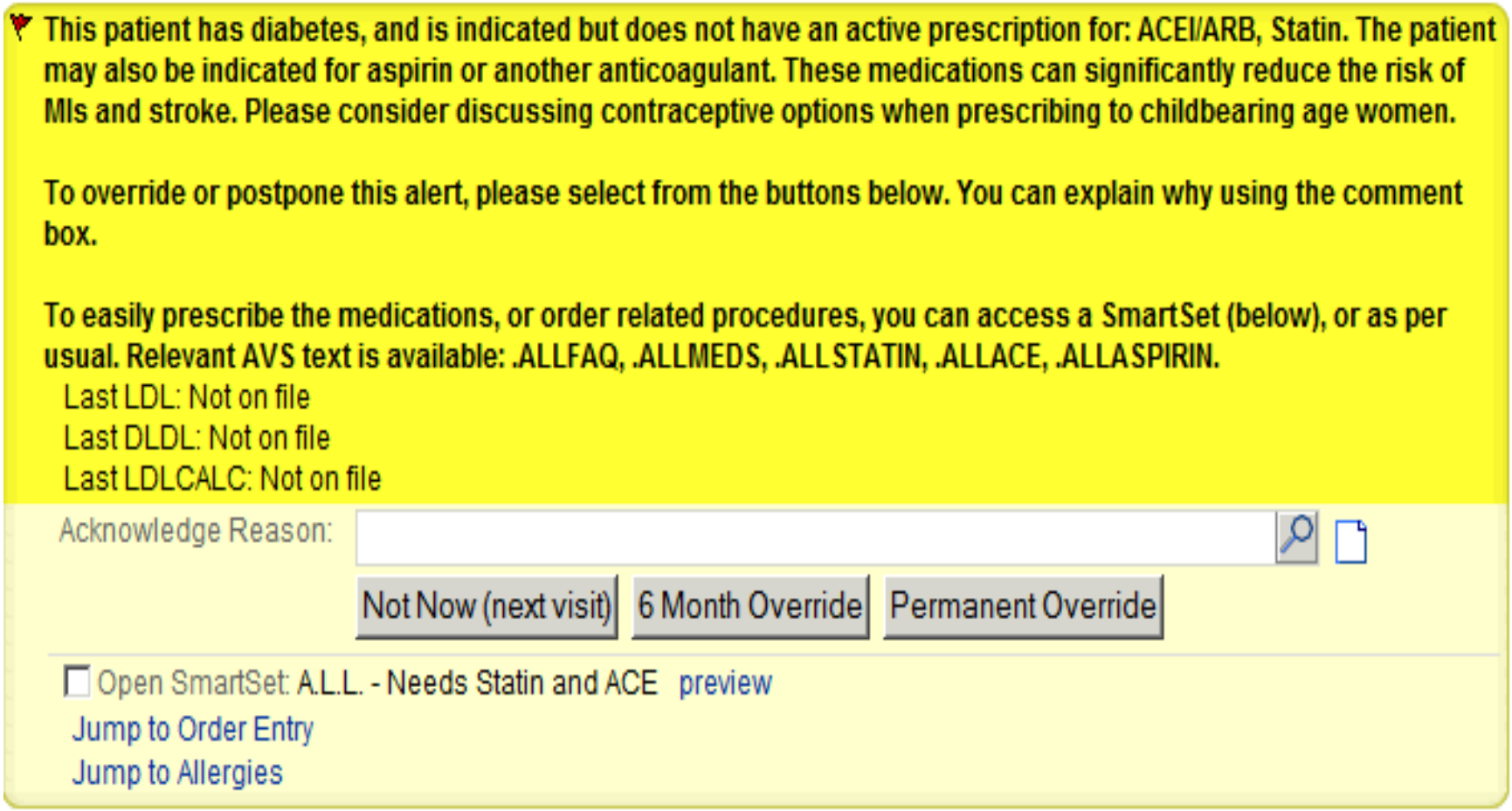
1. The Best Practice Alert (BPA)



The BPA ‘fires’ ….

- In an office visit or phone encounter (and recently, in interim encounters)

- With patients who have diabetes and:
  - Not lactating or pregnant
  - No documented history of anaphylactic reaction to the medication
  - Are indicated for an ACE/ARB and / or a statin, but ..
  - Have no ‘active prescription’
    - Rx not on the med list, OR most recent rx / refill >1 year ago

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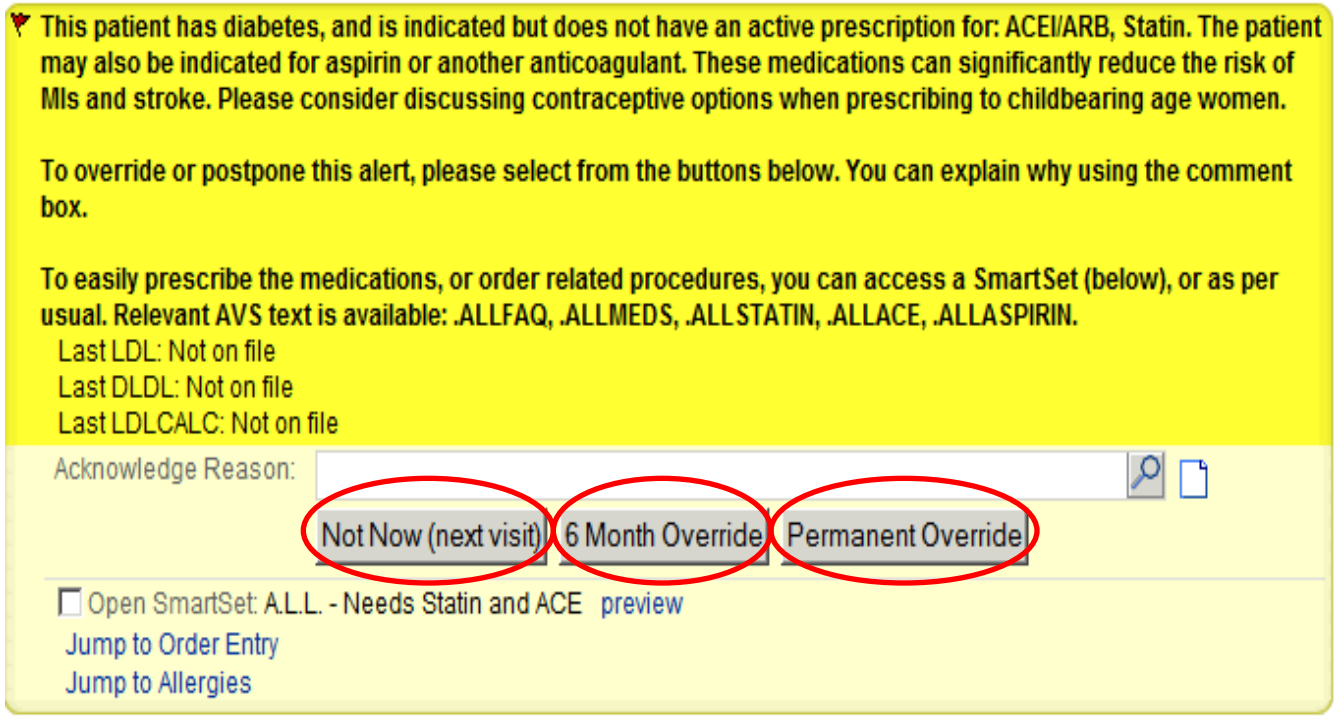
How to postpone or override the BPA

- Not Now: Delays the BPA until next visit.
- 6 month Override: Delays the BPA for 6 months.
- Permanent Override: Turns off the BPA for this patient permanently.



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What else can the BPA do?

- 'Jump' to the allergies field
- 'Jump' to the Order Set
- Print After Visit Summary text in English and Spanish:
  - General: .ALLFAQ (English) and .SPALLFAQ (Spanish)
  - Statins, ACE/ARB, and aspirin: .ALLMEDS and .SPALLMEDS
  - Statins only: .ALLSTATIN and .SPALLSTATIN
  - ACE/ARBs only: .ALLACE and .SPALLACE
  - Aspirin only: .ALLASPIRIN and .SPALLASPIRIN

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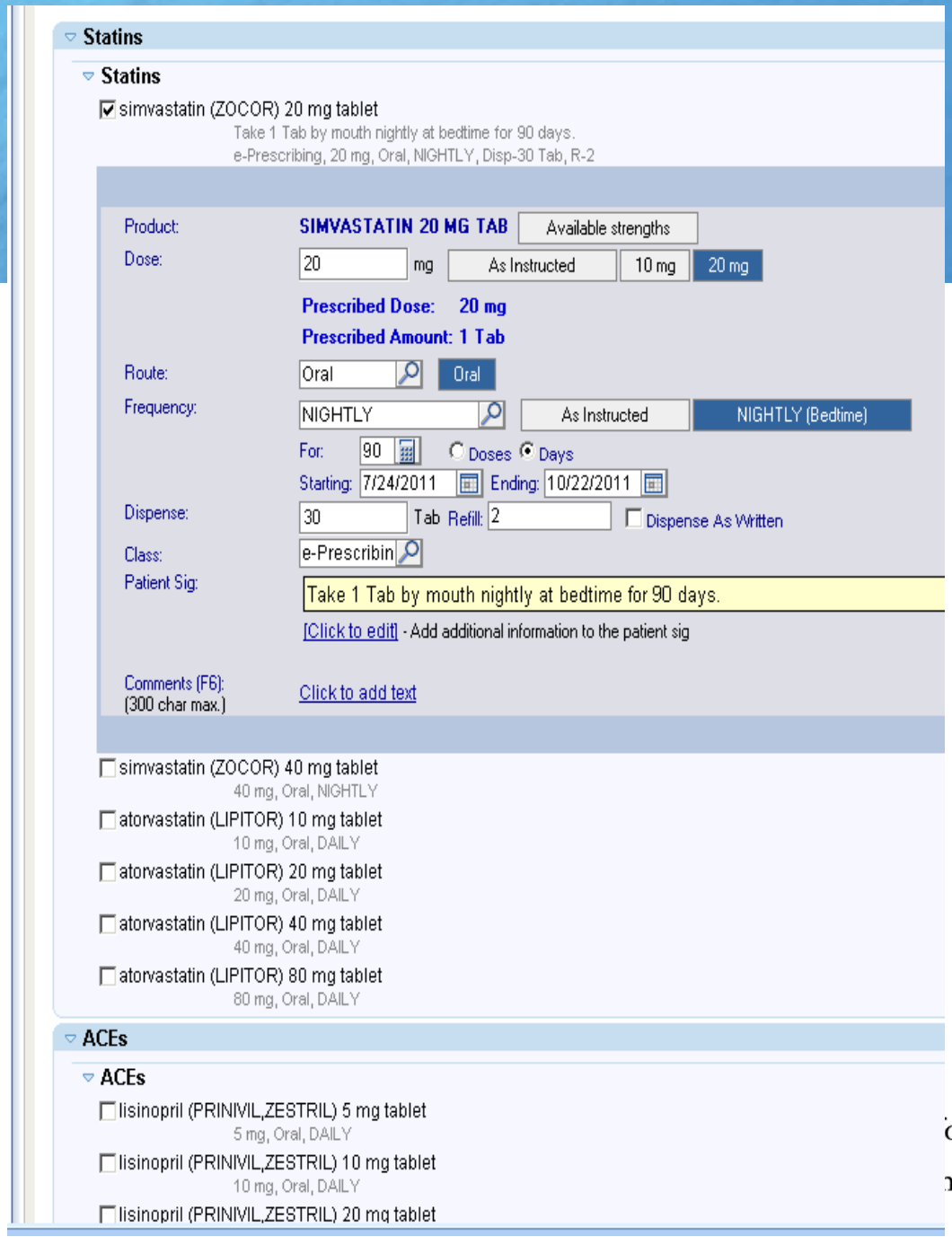
2. Order Set: Supports medication orders



3. Panel management rosters

- Patient data rosters built in OCHIN's panel management tool (Solutions)
  - Uses algorithms based on EHR data
  - ID patients indicated for an ACE/ARB or statin, who don't have an active prescription for the medication(s)
  - Filter functions
  - Plus other DM data
  - Usually used by clinic *staff*, not directly by providers
  - Inreach tools alert staff to *remind the provider*

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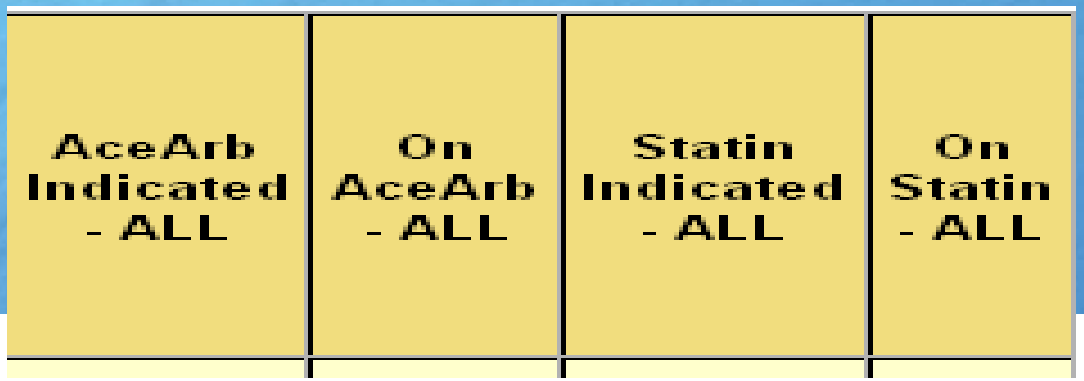
Summary of Solutions Rosters



- A. Inreach / scrub tools:
  - Added relevant data to an existing Chronic Disease Care Management (CDCM) Roster
  - ALL Daily Roster: Data on patients to be seen on any given day
- B. Outreach tools:
  - No Recent Visit Roster: Identifies patients due for a visit
  - CV Protection Roster: Like to No Recent Visit + flags high BP
  - Recent Rx Roster: Identifies recent rxs to support follow up

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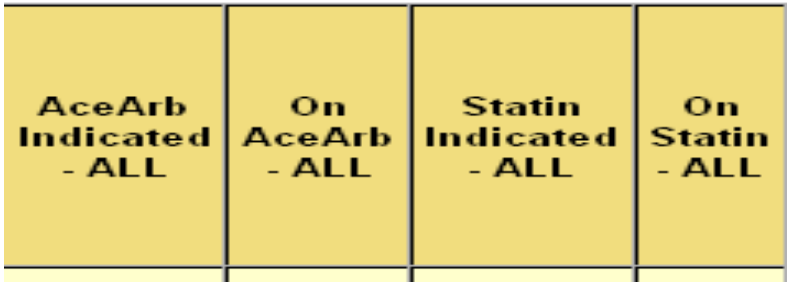
Patient data rosters for inreach and scrubbing: Columns added to the CDCM_Roster

- Columns added to the CDCM_roster include:
  - If a patient is 'indicated' for an ACE/ARB.
  - If a patient is actively 'on' an ACE/ARB.
  - If a patient is 'indicated' for a statin.
  - If a patient is actively 'on' a statin.



  - The last date that the BPA fired.
  - Whether the BPA was overridden or postponed, and any comments entered in the BPA comment box.
  - Last time the clinic's diabetes flowsheet was 'touched' and by whom.

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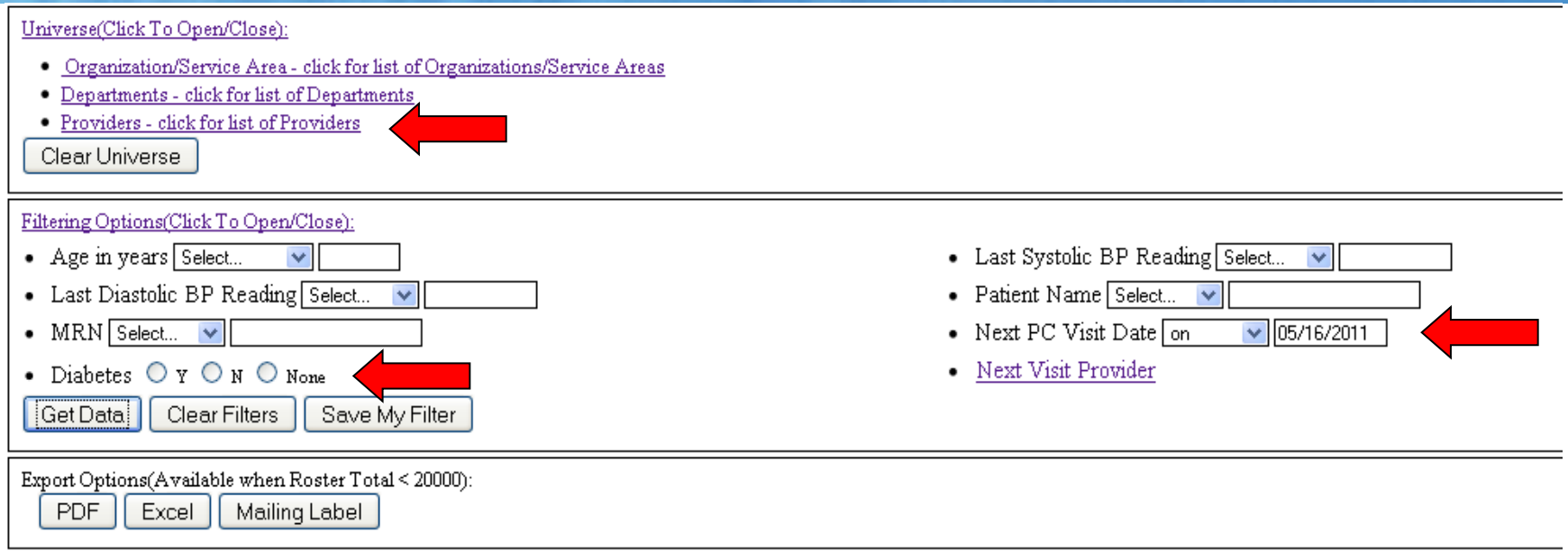
Example of Solutions roster filters: The ALL 'Daily Roster'



	Patient Name	Age	MRN	Current PCP	Next PC Visit	Next PC Visit Provider Name	Dx of Diabetes	On ACE/ARB - A.L.L.	ACE/ARB Indicated - A.L.L.	On Statin - A.L.L.	Statin Indicated - A.L.L.	Last HbA1C Date	Last HbA1C	Last LDL Date	Last LDL	Last BP Date	Last BP

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Monthly feedback reports

- We provide the study sites with monthly data reports so that they can see their progress
  - By clinic and by provider
- Intended to support ‘best practice’ sharing, identification of barriers / facilitators;
- Competition may increase adherence

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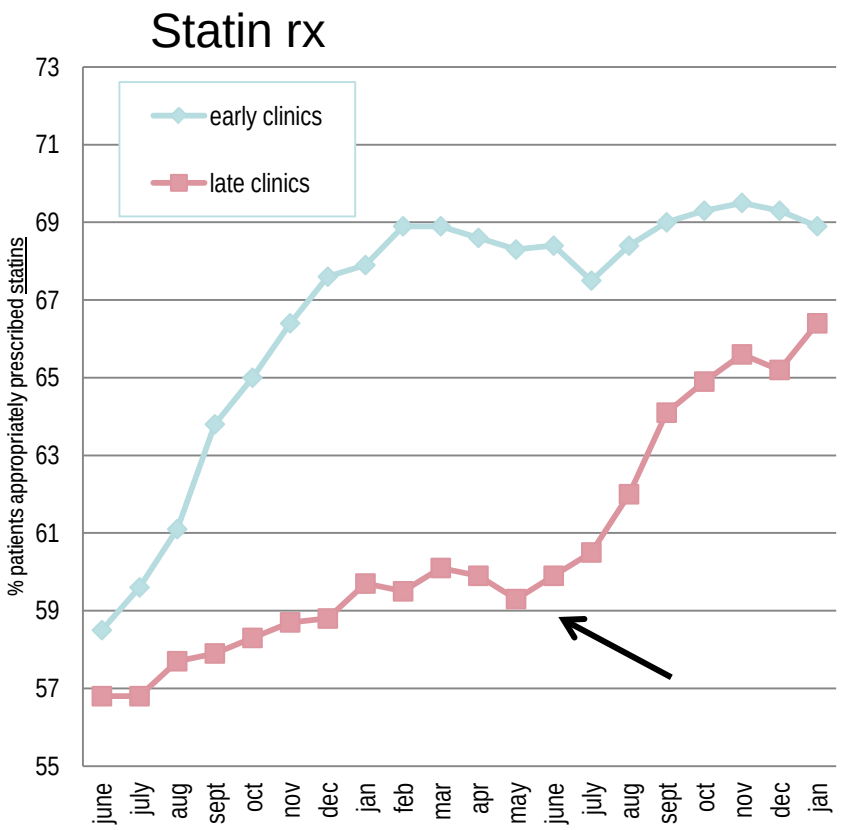
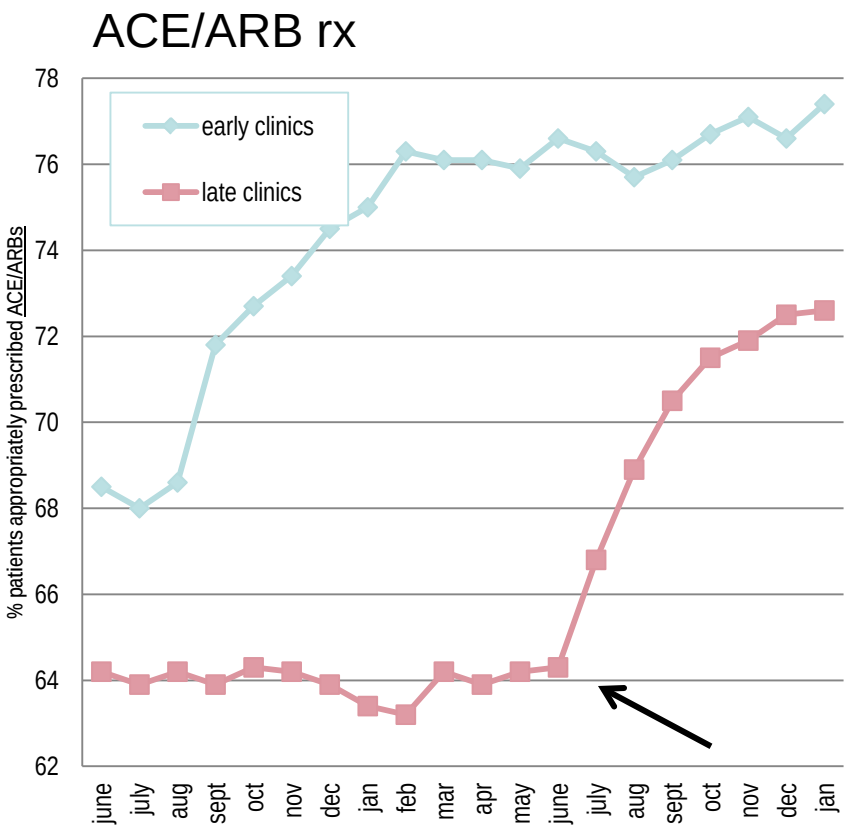
Monthly feedback reports (and a sneak peek at results thus far)!





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How / why the tools are / are not used ... (i)

- Best Practice Alert (BPA)
  - For some sites, the only 'inreach tool' used
    - Providers rarely 'respond' by pushing a button; many report "It helps."
  - *Limitations / barriers*:
    - Providers don't trust BPAs; habitually ignore → *a major challenge in using alerts to improve provider adherence*
    - Earlier BPAs (not part of the study) less carefully tested
    - 'Alert fatigue'

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How the tools are / are not used … (ii)

- Panel management rosters
  - Some sites don't regularly use Solutions
  - Data always 36 hours old
  - Need to leave the Epic environment to use Solutions
  - *Limitations*:
    - Changing workflow: resistance
    - Some teams use for inreach / scrub
    - Outreach use is mixed (integration into other outreach efforts?)
    - Better when ALL-relevant columns added to existing rosters?
  - Most often used by study Site Coordinators to make lists of 'indicated but not active' patients for individual providers

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How / why the tools are / are not used ... (iii)

- Order sets:
  - Occasionally used
  - Limitation: “I’m used to making orders a certain way”
  - KP order sets supported ‘bundled’ prescribing; CHCs adapted this approach
- Posters, handouts:
  - Use varies by site; some love them, some don’t
  - Clinic barriers to hanging posters
  - Cultural appropriateness
- Dotphrases: Rarely used (communication challenges, changing habits)

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Lessons learned: Barriers to improved provider adherence

Change is hard

- Provider 'buy-in' about evidence for the medications?
  - Harder with younger patients: "I don't want to start a 30 yo on a life-long statin"
- Fitting the intervention tools into existing / changing workflows?
  - Which team member uses which tools? Differences in sites with more / less team-based models?
- Multiple, concurrent QI initiatives

Decision support tools: challenges

- Support one aspect of DM care, not all aspects of patient care
- Population-level tools that also give providers leeway to make decisions for individual patients
- Others as described above (e.g., 'alert fatigue')

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Lessons learned: Implementation tips for improving provider adherence (i)

- When implementing new CDS tools, *communicate*:
  - Tools should *help* with, not direct, providers' decisions: "The tools will help you deliver great care," not "The tools will make you do what we want."
  - Leadership expectations for change, allowing for flexibility and innovation.
  - The testing processes, evidence and guidelines, and parameters / definitions / data sources underlying the support tools.
  - Expectations about which staff (MA, RN, etc.) will use which tools in their workflow.

- Obtain support from clinic leadership.

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Lessons learned: Implementation tips for improving provider adherence (ii)

- If possible ...
  - Identify clinician /staff ‘champions’ (& provide any materials they need).
  - Involve pharmacists and all members of the care team.
  - Engage future users in testing, adapting, implementing; listen and be flexible!
  - Provide regular progress updates (harder than it seems!).
  - Try to create habits around key tasks.

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Lessons learned: Promoting provider adherence – it's not just the tools!

Different incentives available in CHCs versus KP:

- Financial incentives like KP's: Not feasible
- Top-down directives like KP's: Much less feasible

Instead, we had:

- Grant-supported Site Coordinators (practice facilitators) on-site
- Monthly feedback reports, provided by research team
- Clinician 'champions' with 5% FTE, supported by grant
- Monthly research team meetings with clinic staff
- And engaged clinic staff in adapting the tools (increase buy-in?)

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Next steps

- Share best practices
  - Improve tool use / uptake / trust
  - Improve patient adherence once prescribed
- Quantitative evaluation of:
  - Impact on % of patients taking the appropriate meds
  - How the tools were used / which elements most successful
- Qualitative evaluations of:
  - Impact of tools on workflow
  - Implementation process
  - Clinic staff perceptions
- Further research on how to adapt CDS tools to enhance provider adherence to guideline-based prescribing in CHCs
  - February R01 at NIDDK: Dissemination methods
  - March R18 at NHLBI: Improved point of care tools

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- Questions, comments, suggestions?

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Patient data rosters for in-reach and scrubbing: The ALL Daily Roster

On ACE/ARB - A.L.L.	ACE/ARB Indicated - A.L.L.	On Statin - A.L.L.	Statin Indicated - A.L.L.	Last HbA1C Date	Last HbA1C	Last LDL Date	Last LDL	Last BP Date	Last BP

- Includes information on any patients scheduled for a visit on a given day.
- Identifies patients indicated for an ACE/ARB or statin who don't appear to be taking the medication.
- Also includes data on several elements of diabetes care, including:
  - Last HbA1c
  - Last LDL
  - Last BP
  - Last foot exam

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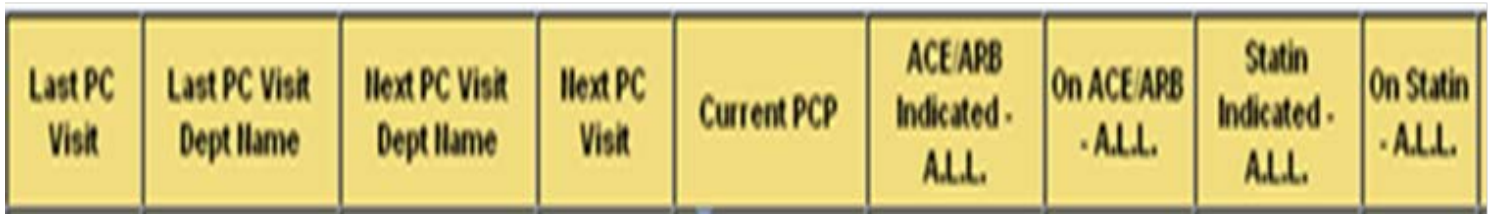
Patient data rosters for outreach / panel management and follow-up:

ALL No Recent Visit Roster



Last PC Visit	Last PC Visit Dept Name	Next PC Visit Dept Name	Next PC Visit	Current PCP	ACE/ARB Indicated - A.L.L.	On ACE/ARB - A.L.L.	Statin Indicated - A.L.L.	On Statin - A.L.L.

- Can be used to identify patients who should be called to come in for a visit.
- Identifies patients seen at the clinic in the last year, but not in the last three months.
- Identifies patients indicated for an ACE/ARB or a statin but do not appear to be actively taking the medication(s).
- Identifies current PCP, date of last PCP visit, next scheduled PCP visit.
- Also shows other measures (BP, LDL) relevant to DM care.
- Use .ALLPHONEAPPT to track what happens when you make an outreach call.

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Patient data rosters for outreach / panel management and follow-up:

ALL Recent Rx roster

Last ACE/ARB Rx Date	Last AceArb Rx Order Class	Last Statin Rx Date	Last Statin Rx Order Class	ACE/ARB Indicated - A.L.L.	Statin Indicated - A.L.L.	

- Identifies patients recently issued an ACE/ARB or statin rx.
- Can be used to help with follow-up.
- Identifies when that rx was issued, type of rx (in-house or outside pharmacy), medication information.
- You can filter on how recently the prescription was issued.
- Use .ALLPHONERX to track what happens when you make a follow-up call.

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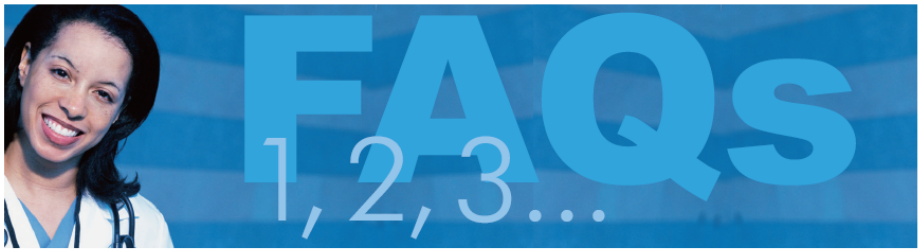

Why should I take these medicines?

If you have diabetes, you are at higher risk of having a heart attack or a stroke.

Taking an ACE-Inhibitor, a lipid (cholesterol)-lowering statin, and an aspirin can help to protect you from a heart attack or stroke.

Studies have shown that these medications are effective and safe. When you take all three, these medicines can cut your risk of having a heart attack or stroke in half.

It is important to take these medications as directed every day. Don't stop taking these medications without asking your provider.

Reduce your heart attack risk with daily medications:

1. ACE-inhibitor
2. Lipid-lowering statin
3. Aspirin

1. ACE/ARB:

What is ACE/ARB?

ACE (Angiotensin converting enzyme inhibitors) and ARB (Angiotensin II receptor blockers) help reduce your risk of heart attacks and strokes. They lower blood pressure by helping your blood vessels relax which helps your heart beat more easily. The medicines do this even if you do not have high blood pressure. Medicines in this group include lisinopril and losartan.

What does ACE/ARB do?

- Helps protect the kidneys from diabetes.
- Helps the heart pump more easily.

What should I discuss with my provider before starting ACE/ARB?

Make sure your provider knows if:

- You are taking a water pill (diuretic) that contains the ingredient spironolactone (Aldactone) or triamterene (Dyazide, Maxzide).
- You are taking potassium pills or using salt substitutes.
- You are pregnant, may become pregnant, or are breastfeeding.
- You have had a kidney transplant or other kidney problems.

What are the side effects of ACE/ARB?

They can cause a dry cough in some people. If the cough is bad enough to make you stop the medicine, talk to your provider. You may need to try a different medicine.

If you have trouble breathing; swelling in your face, head, neck, or tongue; dizziness or light-headedness; stop taking ACE/ARBl and call your provider right away.

What else should I be aware of?

It can be unsafe to use salt substitutes with this medication, so be sure to ask your provider if it is safe to use a replacement for table salt.

FAQs
1, 2, 3...

2. Lipid-lowering Statins (like simvastatin or lovastatin):

What is a statin and what does it do?

- Lowers the amount of cholesterol made in the liver.
- Protects blood vessels.

What should I discuss with my provider before starting a statin?

Make sure your provider knows:

- If you are pregnant, may become pregnant, or are breastfeeding.
- If you have had a kidney transplant or other kidney problems.
- If you take any other medications, vitamins, herbs or dietary supplements; particularly potassium supplements, antifungal medicines, or antibiotics.
- If you are taking a blood thinner such as warfarin (Coumadin), clopidogrel (Plavix), or ticlopidine (Ticlid).

What are the side effects of statins?

Simvastatin or lovastatin can occasionally cause muscle aches. Sometimes a change in medicine or dose can make these go away. Be sure and tell your provider if you have muscle aches after starting a statin.

What else should I be aware of?

- Do not take with erythromycin (an antibiotic).
- Do not drink grapefruit juice.
- Avoid heavy alcohol use.

How can I be an active participant in my own health care?

- Take your medication as prescribed.
- Eat healthy, balanced meals and snacks.
- Exercise on most days of the week.
- See your provider for checkups and tests on a regular schedule.
- Keep an up-to-date list of the all the medications, vitamins, herbs and dietary supplements that you are taking.
- Let your doctor know if you are pregnant, may become pregnant, or are breastfeeding.

3. Aspirin:

Why is aspirin recommended?

A heart attack occurs when a blood vessel in the heart is blocked. If blood and oxygen cannot get to the heart muscle, then part of the heart dies. Aspirin can prevent clots from forming.

How much aspirin should I take?

If your provider recommends aspirin, take one 81mg tablet once a day with a meal and a full glass of water. Use enteric coated aspirin to help protect the lining of your stomach.

Do I need to make an appointment before I start taking aspirin?

You should not take daily aspirin if you have any of the following conditions:

- Are allergic to aspirin.
- Have asthma that is induced by aspirin.
- Have an ulcer or other stomach problem.
- Take blood thinners such as warfarin (Coumadin) clopidogrel (Plavix) or ticlopidine (Ticlid).

Let your provider know if any of these conditions affect you.

What are the most common side effects of aspirin?

The most common side effect of aspirin is stomach upset. Taking aspirin with food can help. You can take an aspirin that has a special coating (an enteric-coated aspirin) to make it less irritating to the stomach. If you develop nausea, vomiting, heartburn, or abdominal pain; unusual bleeding or bruising; or stools that are bloody or tarry-black; stop taking aspirin and call your provider.

What else should I be aware of?

About a week before having surgery or dental work your provider may want you to stop taking aspirin. Stopping aspirin is usually not necessary for a regular teeth cleaning. Afterwards, ask your health care professional or dentist when it is safe for you to start back on aspirin.

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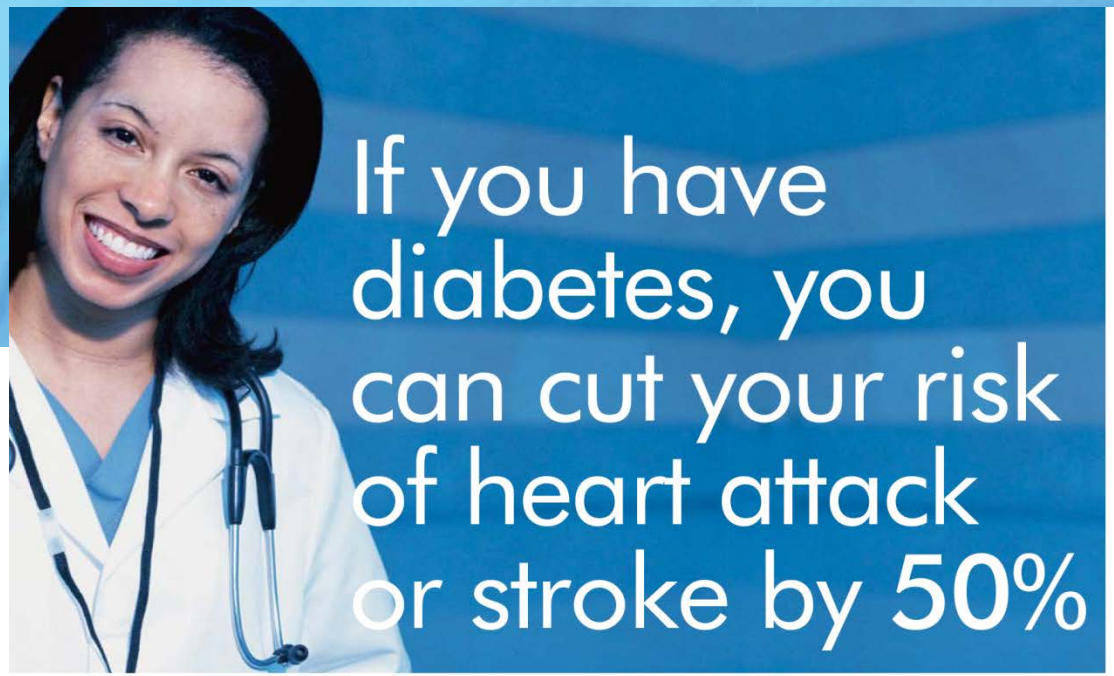
Exam room poster



As easy as 1, 2, 3...

WITH JUST THREE INEXPENSIVE PILLS A DAY!

1 - **ACE inhibitor** to protect your arteries

2 - **Lipid lowering** medication to improve cholesterol

3 - **Aspirin** to prevent artery clots

People with diabetes aged 18-75 can cut their risk of heart attack or stroke in half.

Ask your health care provider if these medicines are right for you!

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Collaborative, iterative decisions on:

- Definitions:
  - Specifics - DM, CVD, 'active' rx
  - Inclusion criteria (who is 'indicated' for statins, ACEI
    - E.g., which patients should be excluded from certain guidelines
    - *This changed at month 6 due to provider feedback (add HTN)*
- Preferred method for receiving point-of-care 'alerts'
  - Best Practice Alert (BPA) or Health Maintenance Alert or?
  - BPA specifics (hard stop YN?; response options?)
- Panel management tools:
  - Add certain data columns (e.g., current PCP, last PCP visit date)
- Etcetera! For example:
  - Content of the patient education materials
  - How to identify 'dismissed' patients?
  - Rx to childbearing-age women?

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